POLICY BULLETIN

Tecumseh Compressor Company
Compressor Group

Subject: **Scroll compressor Application Parameters For Commercial Refrigeration applications**

PB - 127

REV. DATE: 11/09/07

Issued: 11/09/07

Scroll compressors are precision machined and assembled equipment designed for R404A refrigerant.

For superior performance and long term reliability the following parameters **must** be maintained when applying Tecumseh scroll compressors:

1.	Refrigerant:	R404A
2.	Evaporator Temperature Range:	0°F to +50°F (-17.8°C to +10°C)
3.	Condensing Range:	+70°F to +140°F (+21.1°C to +60°C)
4.	Pressure Ratio:	Refer to Expect Performance Data or Application Envelope
5.	Motor Temperature:	Maximum 265°F (129.4°C) (Resistance Method)
6.	Shell Bottom:	Minimum of Suction Saturated Temperature plus 35° F (19.4°C) (see Policy Bulletin 107.)
7.	Discharge Gas Temperature:	260°F (126.7°C) Maximum (D2I) providing maximum motor temperature is not exceeded.
8.	Suction Gas Temperature:	5 °F (2.8 °C) Minimum Superheat **NOTE:** Under transient flood back conditions less than 5 °F (2.8 °C) superheat is permissible providing the above shell bottom parameter is maintained.
9.	Voltage Range (Run):	See Policy Bulletin No. 113
10.	Voltage (Start):	See Policy Bulletin No. 102
11.	Mounting Components:	Grommet 70650-01, Sleeve 71035.
12.	Internal Pressure Relief Valve:	500 ± 25 psi (3440 ± 172 kPa) differential
13.	Abnormal Discharge Pressure:	750 psig (5172 kPa) Maximum

14. Reverse Rotation – The inherent design of the scroll compressor requires rotation in one direction only.

    Single Phase
    The scroll will start in the correct direction. Brief power interruptions, generally a small fraction of a second, may cause the scroll to operate in reverse. This operation will be noisy but will last only a couple of minutes until the internal motor protector trips. The scroll will then restart in the correct direction. A timer that senses these interruptions and momentarily locks-out the scroll compressor is strongly recommended.

    Three Phase
    Correct rotation must be verified at initial start-up, observing that suction pressure drops as discharge pressure rises. If not, disconnect power and interchange any two power leads. Reverse rotation must be corrected immediately.
    All three phase motors are internally wired identically. In a multiple compressor system, after verifying the first compressor, connecting correctly phased power leads to the same terminal pins of the remaining compressors will provide correct rotation. It is strongly recommended that a phase sequence sensing device be added to the installation to protect the compressors from future connection changes to the incoming power supply.

15. Oil Management in Compressor Racks – When used on racks with multiple compressors in parallel, an oil management system must be added to assure correct oil level in each compressor. The oil sight glass connection has been designed to support an oil control device.

16. Inlet Accumulator – See Engineering Recommendation No. 12.

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APPLICATION BOUNDRIES FOR R404A